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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,450	04/07/2005	Mark Patrick	4623-045154	3051
7590 Richard L. Byrne 700 Koppers Building 436 Seventh Avenue Pittsburgh, PA 15219-1818			EXAMINER CAJILIG, CHRISTINE T	
			ART UNIT 3633	PAPER NUMBER
			MAIL DATE 01/18/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/507,450

Applicant(s)

PATRICK, MARK

Examiner

CHRISTINE T. CAJILIG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/13/04, 11/07/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 36 and 40-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 37-39 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/14/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Species 1, claims 1-12, 14-35, 37-39 in the reply filed on 11/07/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 13, 36 and 40-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species 2-4, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/07/07. Upon further consideration, claim 13 also reads on elected Species 1, and will therefore be examined accordingly.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The references cited in the Search Report dated 05/12/03 have been considered as they are also listed on the PTO-1449 form.

Drawings

Figures 1, 2a, and 2b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "connector element is a coil with small pitch windings..." as noted in claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 35 is objected to because of the following informalities: The first line of the claim recites "the by section;" however, "the by section" lacks antecedent basis in preceding claims. Did Applicant intend for "the by section" to recite "--the section--?" Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 13, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11, 12, 14, 15, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Sattler (U.S. Patent No. 3,210,900).

Regarding claim 1, Sattler in Figures 1-6 discloses a connector assembly *for connecting together a structural component and a concrete body wherein the connector assembly is capable of resisting shear forces between the structural component and the concrete body* and includes a connector (2) *adapted to be embedded in concrete and adapted to be attached to the structural component*; and a connector element (4) *that is adapted to surround the connector and form a barrier that is spaced from the connector and confines concrete around the connector.*

Regarding claim 11, Sattler discloses the structure discussed above and further discloses that the connector element (4) is a coil with small pitch windings.

Regarding claim 12, Sattler discloses the structure discussed above and further discloses that the connector element is a coil with small pitch windings and the ends of the coils are closed (at 4') to facilitate the development of hoop stresses in the coil.

Regarding claim 14, Sattler discloses the structure discussed above and further discloses *that in a situation in which the concrete body is supported by a profiled*

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decking having an upstanding rib or ribs separated by pans and an underlying structural framework of beams, the connector element is annular.

Regarding claim 15, Sattler discloses the structure discussed above and further discloses that the connector element has a height approximately 60%-80% the height of the rib or ribs on the decking (depending on the ribbed decking installed, the rib decking not being part of the claimed invention).

Regarding claim 25, Sattler in Figures 1-6 discloses a shear connector assembly *for use in construction of concrete composite structures having a concrete body supported by a decking on a structural framework, the shear connector assembly including at least one shear connector stud (2) adapted to be permanently fixed through the decking; and a connector element (4) adapted to form a barrier surrounding at least one connector stud a spaced distance therefrom to confine the concrete around the stud.*

Claims 1, 2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Dyer (U.S. Patent No. 3,024,512).

Regarding claim 1, Dyer discloses a connector assembly *for connecting together a structural component and a concrete body wherein the connector assembly is capable of resisting shear forces between the structural component and the concrete body and includes a connector (17) adapted to be embedded in concrete and adapted to be attached to the structural component; and a connector element (11) that is adapted to*

surround the connector and form a barrier that is spaced from the connector and confines concrete around the connector.

Regarding claim 2, Dyer discloses the structure discussed above and further discloses that the connector and the connector element are separate components and the connector assembly further includes a means (15) for holding the connector element around the connector.

Regarding claim 8, Dyer discloses the structure discussed above and further discloses that the holding means (15) is *adapted to hold the connector element from the connector so that there is a spacing of at least the maximum size of aggregate in concrete in the concrete body between the components.*

Claims 1, 11, 13, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Grossman (U.S. Patent No. 5,978,997).

Regarding claim 1, Grossman in Figures 4 and 5 discloses a connector assembly *for connecting together a structural component and a concrete body wherein the connector assembly is capable of resisting shear forces between the structural component and the concrete body and includes a connector (106) adapted to be embedded in concrete and adapted to be attached to the structural component; and a connector element (98) that is adapted to surround the connector and form a barrier that is spaced from the connector and confines concrete around the connector.*

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Regarding claims 11 and 13, Grossman discloses the structure discussed above and further discloses that the connector element is a continuous ring of solid material, such as steel.

Regarding claim 16, Grossman in Figures 4 and 5 discloses a composite structure that includes a structural framework of beams (56, 68, 72), a decking on the structural framework (66), a concrete body (82) on the decking, and a connector assembly, the connector assembly including a connector (106) embedded in concrete and attached to the structural framework; and a connector element (98) that surrounds the connector and forms a barrier that is spaced from the connector and confines concrete around the connector.

Regarding claim 17, Grossman discloses the structure discussed above and further discloses that the connector assembly includes a means (the concrete around the connector) that holds the connector element around the connector.

Claims 1-4 and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Knight et al. (U.S. Patent No. 5,492,456).

Regarding claim 1, Knight et al. in Figure 1 discloses a connector assembly *capable of connecting together a structural component and a concrete body wherein the connector assembly is capable of resisting shear forces between the structural component and the concrete body* and includes a connector (26) *adapted to be embedded in concrete and adapted to be attached to the structural component*; and a

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connector element (12) that is *adapted to surround the connector and form a barrier that is spaced from the connector and confines concrete around the connector.*

Regarding claim 2, Knight et al. discloses the structure discussed above and further discloses that the connector and the connector element are separate components and the connector assembly further includes a means (36) for holding the connector element around the connector.

Regarding claim 3, Knight et al. discloses the structure discussed above and further discloses that the holding means is a clip extending between the connector and the connector element.

Regarding claim 4, Knight et al. discloses the structure discussed above and further discloses that the connector includes a shank with one end *adapted to be embedded in concrete and the other end adapted to be attached to the structural component*, and wherein the clip includes a means (52) for coupling the clip to a section of the connector element, and a plurality of legs (50) formed from resilient material that extend inwardly and have inner ends that describe an opening *that can receive the shank of the connector, and which opening has a diameter that is less than that of the shank, whereby in use the legs deflect when the clip is pushed over the shank so that the shank extends through the opening and the inner ends of the legs contact the shank and thereby couple the clip to the shank.*

Regarding claim 25, Knight et al. in Figure 1 discloses a shear connector assembly *capable of being used in construction of concrete composite structures having a concrete body supported by a decking on a structural framework*, the shear connector

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assembly including at least one shear connector stud (26) *adapted to be permanently fixed through the decking*; and a connector element (12) *adapted to form a barrier surrounding at least one connector stud a spaced distance therefrom to confine the concrete around the stud*.

Regarding claim 26, Knight et al. discloses the structure discussed above and further discloses a means (36) for holding the connector element around the connector stud and concentric of the stud.

Regarding claim 27, Knight et al. discloses the structure discussed above and further discloses that the holding means (36) is a clip extending between the connector stud and the connector element.

Claims 30-35 and 37-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Platano (U.S. Patent No. 5,810,399).

Regarding claim 30, Platano in Figures 1-6 discloses a clip capable of being used with the connector assembly defined in claim 1 and includes a means (24) *for coupling the clip to a section of the connector element*, and a plurality of legs (22) formed from resilient material that extend inwardly and have inner ends that describe an opening (defined by 26) *that can receive a section of the connector, and which opening has a diameter that is less than that of the connector section, whereby in use the legs deflect when the clip is pushed over the connector so that the connector section extends through the opening and the inner ends of the legs contact the connector section and thereby couple the clip to the connector*.

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Regarding claim 31, Platano discloses the structure discussed above and further discloses that the legs are formed to enable the legs to flex at least in one direction, *when in use the clip is pushed over the connector to locate the clip on the connector.*

Regarding claim 32, Platano discloses the structure discussed above and further discloses that the legs are formed to enable the legs to flex in two mutually perpendicular directions, *when in use the clip is pushed over the connector to locate the clip on the connector.*

Regarding claim 33, Platano discloses the structure discussed above and further discloses that at least one of the legs includes an upward crank (30).

Regarding claim 34, Platano discloses the structure discussed above and further discloses that the leg or legs that include the cranked end further include a section (a) that is formed to increase the flexibility of the leg.

Regarding claim 35, Platano discloses the structure discussed above and further discloses that the section is in the form of a curved bend in the leg outwardly of the cranked end.

Regarding claim 37, Platano discloses the structure discussed above and further discloses that the inner ends of the legs include projections (that form curved portion 26) *that enable the legs to grip the connector section securely.*

Regarding claim 38, Platano discloses the structure discussed above and further discloses that the legs are formed so that they are able *to minimize interference to concrete flowing into the volume defined by the connector element that enclose the connector.*

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Regarding claim 39, Platano discloses the structure discussed above and further discloses that the means for coupling the clip to the section of the connector element includes a plurality of clasps (downwardly hooked portion of 24, 32) that *can inherently clip onto the section of the connector element*.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-24, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grossman (U.S. Patent No. 5,978,997).

Regarding claims 19, 20, and 21, Grossman discloses the structure discussed above, but does not disclose that the spacing of the connector element from the connector is at least 20 mm, 25 mm, or 30 mm. However, it would have been an obvious matter of design choice to modify the structure of Dyer to have the spacing of the connector element from the connector to be at least 20 mm, 25 mm, or 30 mm since such a modification would have involved a mere change in the size of the components and would allow for different stress load capacities. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

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Regarding claims 22, 23, and 24, Grossman discloses the structure discussed above, but does not disclose that the spacing of the connector element from the connector is at least the maximum size of aggregate in concrete in the concrete body or is at least 1.25 or 1.5 times the maximum size of aggregate in concrete in the concrete body. However, it would have been an obvious matter of design choice to modify the structure of Dyer to have the spacing of the connector element from the connector is at least the maximum size of aggregate in concrete in the concrete body or is at least 1.25 or 1.5 times the maximum size of aggregate in concrete in the concrete body since such a modification would have involved a mere change in the size of the components and would allow for different stress load capacities. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 28 Grossman in Figures 4 and 5 discloses 28 a composite concrete structure including a structural framework (56, 68, 72) incorporating interconnected cross-beams and a decking (66) mounted on the beams; connectors (106) in the form of shear connector studs permanently fixed through the decking and aligned with the beams; a connector element (98) positioned in relation to the decking wherein the element forms a barrier surrounding at least one connector stud a spaced distance therefrom; and concrete (82) poured on the decking to form a composite structure. Since Grossman discloses the structure discussed above, the method of assembling such a structure as claimed in claim 28 would be an obvious, if not inherent, method of assembling the composite concrete decking described above.

Regarding claim 29, Grossman discloses the method discussed above, furthermore, distancing the connector stud and the surrounding connector element from the decking rib at which concrete failure is most likely to occur would have been an obvious method of positioning the connector stud based on a given end design load.

Claims 5-7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyer (U.S. Patent No. 3,024,512).

Regarding claims 5, 6, and 7, Dyer discloses the structure discussed above, but does not disclose that the holding means (15) is adapted to hold the connector element from the connector so that there is a spacing of at least 20 mm, 25 mm, or 30 mm between the components. However, it would have been an obvious matter of design choice to modify the structure of Dyer to have the holding means adapted to hold the connector element from the connector so that there is a spacing of at least 20 mm between the components since such a modification would have involved a mere change in the size of the components and would allow for different stress load capacities. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claims 9 and 10, Dyer discloses the structure discussed above, but does not disclose that the holding means is adapted to hold the connector element from the connector so that there is a spacing of least 1.25 or 1.5 times the maximum size of aggregate in concrete in the concrete body. However, it would have been an obvious matter of design choice to modify the structure of Dyer to have the holding means

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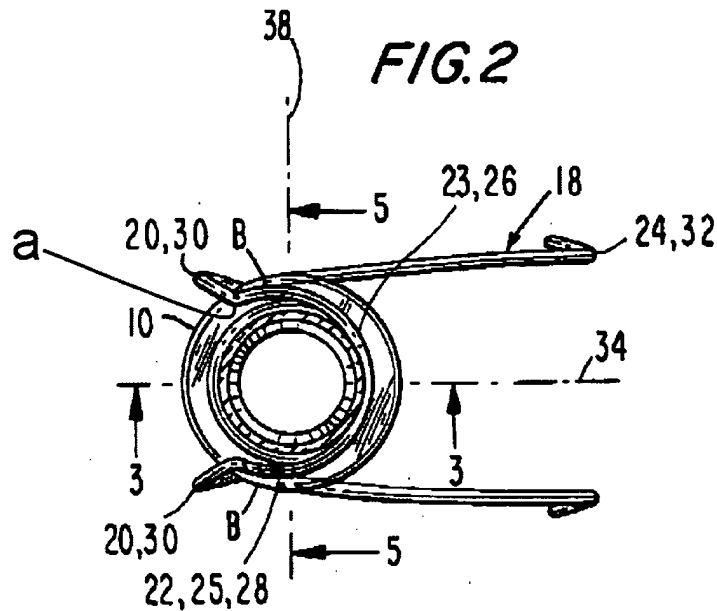
adapted to hold the connector element from the connector so that there is a spacing of least 1.25 or 1.5 times the maximum size of aggregate in concrete in the concrete body since such a modification would have involved a mere change in the size of the components. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Allowable Subject Matter

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art alone or in combination discloses Applicant's invention of a composite decking assembly wherein a shear stud is surrounded by a wall or connector element and the shear stud is clipped on to the wall in order to control the manner in which concrete would break under stress.

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Annotated Drawing

Platano '399

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Slattery et al. (US2893886) connector clip; Costello et al. (US 2589780) connector clip; Koivu (US1616977) rebar clip; Paige (US 2458409) connector clip; Frederick (US1901392) form with rebar clip; Brinckerhoff (US1178210) connector assembly.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE T. CAJILIG whose telephone number is (571)272-8143. The examiner can normally be reached on Monday - Thursday from 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Canfield can be reached on (571) 272-6840. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. T. C./
Examiner, Art Unit 3633
1/14/07

Robert Canfield
Primary Examiner
